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AMENDMENTS TO THE CLAIMS

1-45. (Cancelled)

46. (Currently Amended) An optical disk of recording type on which data is recordable, wherein said optical disk has a sector structure comprising a plurality of sectors, wherein each of the plurality of sectors includes a sector header area and a main data area for recording encrypted data therein,

wherein the sector header area includes a decipher key information area for recording therein at least one decipher key which is required for decrypting the encrypted data, ~~and~~ wherein a size of the decipher key information area is smaller than ~~that a size~~ of each decipher key,

wherein the respective decipher keys which are required for decrypting the encrypted data are recorded in a decipher key table having a plurality of decipher keys,

wherein indexes for indicating recorded positions of the decipher keys which are required for decrypting the encrypted data within the decipher key table are recorded in the decipher key information areas of the plurality of sectors, respectively, and

wherein decipher key status areas for recording decipher key statuses of the respective decipher key areas of said decipher key table are recorded as information for representing a recorded status of the decipher key table.

47. (Currently Amended) The optical disk as claimed in claim 46, wherein each decipher key is divided into a plurality of divided decipher keys having a predetermined size, and

wherein ~~said the~~ plurality of divided decipher keys are recorded in respective decipher key information areas of a plurality of continuous sectors.

48. (Currently Amended) The optical disk as claimed in claim 47, wherein the number of the divided decipher keys ~~is a measure of the~~ corresponds to a number of the sectors which are

included in error correction code (~~ECC~~) blocks, and which are a plurality of sectors required for error correction.

49-50. (Cancelled)

51. (Currently Amended) The optical disk as claimed in claim ~~49-46~~, wherein ~~the~~ said decipher key table is recorded over a plurality of different error correction code (~~ECC~~) blocks.

52. (Currently Amended) The optical disk as claimed in claim ~~49-46~~, wherein the respective decipher keys are managed and recorded in at least one unit of a file unit managed in a file management area, and an extent unit comprising a plurality of continuous sectors on ~~the~~ said optical disk.

53. (Currently Amended) An optical disk of recording type on which data is recordable, wherein said optical disk includes a main data area for recording data therein, wherein said main data area includes a non-encrypted area for recording data in a non-encrypted status, and an encrypted area for recording data in an encrypted status, wherein said non-encrypted area includes decipher key conversion data used for ~~conversion of~~ converting a decipher key into a converted decipher key for decrypting data, and wherein data in ~~the~~ said encrypted area is encrypted by using the converted decipher key ~~which is converted using the decipher key conversion data~~.

54. (Currently Amended) The optical disk as claimed in claim 53, wherein said main data area includes a control information recording sector for recording control information used for controlling data reproduction in a non-encrypted status, and a data recording sector for recording data in an encrypted status, wherein said control information recording sector includes decipher key conversion data used for ~~conversion of~~ converting the decipher key into the converted decipher key, and

wherein data in the data recording sector is encrypted by using the converted decipher key ~~which is converted using the decipher key conversion data.~~

55. (Currently Amended) The optical disk as claimed in claim 54,
wherein said data recording sector includes a non-encrypted area for recording data in a non-encrypted status, and an encrypted area for recording data in an encrypted status,

wherein said non-encrypted area ~~is further of said data recording sector includes~~ additional decipher key conversion data used for converting another decipher key into another converted decipher key, and

wherein AV data in ~~the said encrypted area of said data recording sector~~ is encrypted by using a decipher key obtained by further converting a decipher key, which is converted using the decipher key conversion data, the another converted decipher key by using a further second additional decipher key which is different from the additional decipher key.

56. (Currently Amended) The optical disk as claimed in claim 53, wherein ~~said the~~ decipher key conversion data includes at least copying control information of data.

57. (Currently Amended) An optical disk recording method for recording data on an optical disk of recording type on which data is recordable, said method comprising: ~~including the steps of:~~

reading out a decipher key status which is recorded on the optical disk, and judging whether or not there is an empty area for a decipher key based on the read-out decipher key status;

reserving a decipher key area and recording the decipher key in the reserved decipher key area[[,]] when said judging of whether or not there is the empty area for the decipher key judges ~~judging~~ that there is the empty area for the decipher key;

setting copyright control information and a decipher key index in at least one unit of a file unit and an extent unit;

encrypting data by using the decipher key, and recording the encrypted data on the optical disk in at least one unit of a file unit and an extent unit; and

recording ~~on said optical disk~~, optical disk file management information on the optical disk for managing data which is recorded on ~~said~~ the optical disk.

58-59. (Cancelled)

60. (Currently Amended) An information processing system comprising:

a data encrypting apparatus for encrypting data by using a cipher key;

an optical disk recording and reproducing apparatus for recording a decipher key which is required for decrypting data on an optical disk of recording type, and for reproducing the recorded decipher key; and

a control apparatus connected to said optical disk recording and reproducing apparatus and the data encrypting apparatus[[,]];

wherein said optical disk recording and reproducing apparatus comprises[[:]]

first recording and reproducing means for recording a decipher key table on the optical disk, and for reproducing the decipher key table from the optical disk[[:]];

encrypting and decrypting means for

encrypting the decipher key,

transmitting the encrypted decipher key,

receiving the encrypted decipher key from ~~the~~ said control apparatus, and

decrypting the encrypted decipher key[[:]]; and

second recording and reproducing means for recording a decipher key status table for indicating a recorded status of the decipher key on the optical disk, and for reproducing the decipher key status table from the optical disk;

wherein said data encrypting apparatus comprises[[:]] encrypting means for encrypting the decipher key, and for transmitting the ~~encrypting encrypted~~ decipher key to said control apparatus; and

wherein said control apparatus comprises[[:]]

receiving means for receiving the encrypted decipher key from said encrypting means of said data encrypting apparatus[[:]], and

allocating means for searching for an empty area for the decipher key based on the reproduced decipher key status table, for allocating the received and encrypted decipher key into the searched empty area, and for transmitting the allocated and encrypted decipher key to ~~the~~ said optical disk recording and reproducing apparatus, and

wherein said encrypting and decrypting means of said optical disk recording and reproducing apparatus receives the allocated and encrypted decipher key from said allocating means of ~~the~~ said control apparatus, and decrypts the received encrypted decipher key.

61. (Currently Amended) An information processing system comprising:

an optical disk reproducing apparatus for reproducing a decipher key table comprising data and a plurality of decipher keys which are required for decrypting ~~the~~ data from an optical disk of recording type;

a control apparatus connected to said optical disk reproducing apparatus; and

a data decrypting apparatus for decrypting data by using the plurality of decipher keys, wherein said optical disk reproducing apparatus comprises[[:]]

first reproducing means for reproducing the decipher key table from the optical disk[[:]],

encrypting means for encrypting the reproduced decipher key table, and for transmitting the encrypted decipher key table to said control apparatus[[:]], and

second reproducing means for reproducing a decipher key status table for indicating recorded statuses of the plurality of decipher keys from ~~said~~ the optical disk; wherein said control apparatus comprises[[:]]

receiving means for receiving the encrypted decipher key table from said optical disk reproducing apparatus[[:]], and

searching means for searching for the encrypted decipher key which is required for decrypting data ~~which~~ that is recorded on the optical disk from the received decipher key table~~[[,]]~~ based on the reproduced decipher key status table, and for transmitting the searched encrypted decipher key to ~~the said~~ data decrypting ~~means~~ apparatus; and wherein said data decrypting apparatus comprises~~[[,:]]~~

first decrypting means for decrypting the encrypted decipher key, and for producing the decrypted decipher key, and

second decrypting means for decrypting the encrypted data ~~which is reproduced by said optical disk reproducing apparatus~~, by using the decrypted decipher ~~keys~~ key,~~[[.]]~~ wherein said optical disk reproducing apparatus reproduces the encrypted data which is decrypted by said second decrypting means

62. (Currently Amended) An optical disk recording apparatus for recording data on an optical disk of recording type on which data is recordable,

wherein said optical disk includes a non-encrypted area and an encrypted area, and wherein said optical disk recording apparatus comprises:

recording means for recording data, including decipher key conversion data used for ~~conversion of~~ converting a decipher key into a converted decipher key, ~~for decrypting data~~, in the non-encrypted area in a non-encrypted status, and for recording encrypted data in the encrypted area, wherein the encrypted data is encrypted by using the converted decipher key which is converted using the decipher key conversion data.

63. (Currently Amended) The optical disk recording apparatus as claimed in claim 62, wherein said optical disk further includes a control information recording sector and a data recording sector, and

wherein said recording means records, in a non encrypted status, control information used for controlling reproduction of ~~the data in the said~~ control information recording sector, converts a cipher key into a converted decipher key by using the decipher key conversion data, encrypts

data by using the converted decipher key, and records the encrypted data in ~~the~~ said data recording sector.

64. (Currently Amended) The optical disk recording apparatus as claimed in claim 63, wherein said recording means records, in a non-encrypted status, data including further additional decipher key conversion data on ~~the~~ said non-encrypted area of ~~the~~ said data recording sector, converts the cipher key into a converted decipher key[[,]] by using the decipher key conversion data included in the control information and the ~~further~~ additional decipher key conversion data, encrypts data by using the converted decipher key, and records the encrypted data in ~~the~~ said data recording sector.

65. (Currently Amended) An optical disk reproducing apparatus for reproducing data from an optical disk of recording type on which data is recordable, wherein said optical disk includes a non-encrypted area and an encrypted area, and wherein said optical disk reproducing apparatus comprises:
reproducing means for converting a decipher key into a converted decipher key[[,]] by using decipher key conversion data which is recorded in ~~the~~ said non-encrypted area, for decrypting data which is recorded in ~~the~~ said encrypted area by using the converted decipher key, and for reproducing the decrypted data.

66. (Currently Amended) The optical disk reproducing apparatus as claimed in claim 65, wherein said optical disk further includes a control information recording sector and a data recording sector, and
wherein said reproducing means reproduces control information which is used for controlling data reproduction from ~~the~~ said control information recording sector, converts a decipher key into a converted decipher key by using decipher key conversion data included in the control information, decrypts data which is recorded in ~~the~~ said data recording sector by using the converted decipher key, and reproduces the decrypted data.

67. (Currently Amended) The optical disk reproducing apparatus as claimed in claim 66, wherein said reproducing means reproduces ~~further additional~~ decipher key conversion data which is recorded in ~~the said~~ non-encrypted area of the data recording sector, converts the decipher key into a converted decipher key[[,]] by using decipher key conversion data included in the control information and the reproduced ~~further additional~~ decipher key conversion data, decrypts data which is recorded in ~~the said~~ data recording sector by using the converted decipher key, and reproduces the decrypted data.

68. (Currently Amended) An optical disk recording method for recording data in an optical disk of recording type on which data is recordable,

wherein said optical disk includes a non-encrypted area and an encrypted area, and wherein said method ~~includes the steps of~~ comprises:

recording, in a non-encrypted status, data including decipher key conversion data used for ~~conversion of~~ converting a decipher key into a converted decipher key for ~~decrypting data in the non-encrypted area~~[[,]];

and recording encrypted data in the encrypted area, wherein the encrypted data is encrypted by using the converted decipher key which is converted using the converted decipher key conversion data.

69. (Currently Amended) An optical disk reproducing method for reproducing data from an optical disk in which data is recordable,

wherein ~~said the~~ optical disk includes a non-encrypted area and an encrypted area, and wherein said method ~~includes the steps of~~ comprises:

converting a decipher key into a converted decipher key by using decipher key conversion data which is recorded in the non-encrypted area[[,]];

decrypting data which is recorded ~~on in~~ the encrypted area by using the converted decipher key[[,]]; and

~~reproduces reproducing~~ the decrypted data.

70-95. (Cancelled)

96. (New) An information processing system comprising:

- a data encrypting apparatus operable to encrypt data by using a cipher key;

- an optical disk recording and reproducing apparatus operable to reproduce a decipher key which is required for decrypting data on an optical disk of recording type, and to reproduce the recorded decipher key; and

- a control apparatus connected to said optical disk recording and reproducing apparatus and said data encrypting apparatus;

- wherein said optical disk recording and reproducing apparatus comprises

 - a first recording and reproducing unit operable to record a decipher key table on the optical disk, and to reproduce the decipher key table from the optical disk,

 - an encrypting and decrypting unit operable to

 - encrypt the decipher key,

 - transmit the encrypted decipher key,

 - receive the encrypted decipher key from said control apparatus, and

 - to decrypt the encrypted decipher key; and

 - a second recording and reproducing unit operable to record a decipher key status table for indicating a recorded status of the decipher key on the optical disk, and to reproduce the decipher key status table from the optical disk;

- wherein said data encrypting apparatus comprises an encrypting unit operable to encrypt the decipher key, and to transmit the encrypted decipher key to said control apparatus; and

- wherein said control apparatus comprises

 - a receiving unit operable to receive the encrypted decipher key from said encrypting unit of said data encrypting apparatus, and

 - an allocating unit operable to search for an empty area for the decipher key based on the reproduced decipher key status table, to allocate the received and decipher key into

the searched empty area, and to transmit the allocated and encrypted decipher key to said optical disk recording and reproducing apparatus, and
wherein said encrypting and decrypting unit of said optical disk recording and reproducing apparatus is operable to receive the allocated and encrypted decipher key from said allocating unit of said control apparatus, and to decrypt the received encrypted decipher key.

97. (New) An information processing system comprising:

an optical disk reproducing apparatus operable to reproduce a decipher key table comprising data and a plurality of decipher keys which are required for decrypting data from an optical disk of recording type;

a control apparatus connected to said optical disk reproducing apparatus; and
a data decrypting apparatus operable to decrypt data by using the plurality of decipher keys;

wherein said optical disk reproducing apparatus comprises

a first reproducing unit operable to reproduce the decipher key table from the optical disk,

an encrypting unit operable to encrypt the reproduced decipher key table and to transmit the encrypted decipher key table to said control apparatus, and

a second reproducing unit operable to reproduce a decipher key status table for indicating recorded statuses of the plurality of decipher keys from the optical disk;

wherein said control apparatus comprises

a receiving unit operable to receive the encrypted decipher key table from said optical disk reproducing apparatus; and

a searching unit operable to search for the encrypted decipher key which is required for decrypting data that is recorded on the optical disk from the received decipher key table based on the reproduced decipher key status table, and to transmit the searched encrypted decipher key to said data decrypting apparatus; and

wherein said data decrypting apparatus comprises

a first decrypting unit operable to decrypt the encrypted decipher key and to produce the decrypted decipher key, and

a second decrypting unit operable to decrypt the encrypted data by using the decrypted decipher key,

wherein said optical disk reproducing apparatus is operable to reproduce the encrypted data which is decrypted by said second decrypting unit.

98. (New) An optical disk recording apparatus for recording data on an optical disk of recording type on which data is recordable,

wherein said optical disk includes a non-encrypted area and an encrypted area, and

wherein said optical disk recording apparatus comprises a recording unit operable to

record data, including decipher key conversion data used for converting a decipher key into a converted decipher key, in the non-encrypted area in a non-encrypted status, and

record encrypted data in the encrypted area, wherein the encrypted data is encrypted by using the converted decipher key.

99. (New) The optical disk recording apparatus as claimed in claim 98,

wherein said optical disk further includes a control information recording sector and a data recording sector, and

wherein said recording unit is operable to

record, in a non encrypted status, control information which is used for controlling reproduction of data in said control information recording sector,

convert a cipher key into a converted decipher key by using the decipher key conversion data,

encrypt data by using the converted decipher key, and
record the encrypted data in said data recording sector.

100. (New) The optical disk recording apparatus as claimed in claim 99,
wherein said recording unit is operable to
 record, in a non-encrypted status, data including additional decipher key
 conversion data on said non-encrypted area of said data recording sector,
 convert the cipher key into a converted decipher key by using the decipher key
 conversion data included in the control information and the additional decipher key
 conversion data, to encrypt data using by the converted decipher key, and
 record the encrypted data in said data recording sector.
101. (New) An optical disk reproducing apparatus operable to reproduce data from an optical
disk of recording type on which data is recordable,
wherein said optical disk includes a non-encrypted area and an encrypted area, and
wherein said optical disk reproducing apparatus comprises:
a reproducing unit operable to
 convert a decipher key into a converted decipher key by using decipher key
 conversion data which is recorded in said non-encrypted area,
 decrypt data which is recorded in said encrypted area by using the converted
 decipher key, and
 reproduce the decrypted data.
102. (New) The optical disk reproducing apparatus as claimed in claim 101,
wherein said optical disk further includes a control information recording sector and a
data recording sector, and
wherein said reproducing unit is operable to
 reproduce control information which is used for controlling data reproduction
 from said control information recording sector,
 convert a decipher key into a converted decipher key by using decipher key
 conversion data included in the control information,

decrypt data which is recorded in said data recording sector by using the converted decipher key, and
reproduce the decrypted data.

103. (New) The optical disk reproducing apparatus as claimed in claim 102, wherein said reproducing unit is operable to

reproduce additional decipher key conversion data which is recorded in said non-encrypted area of said data recording sector,

converts the decipher key into a converted decipher key by using decipher key conversion data included in the control information and the reproduced additional decipher key conversion data,

decrypt data which is recorded in said data recording sector by using the converted decipher key, and

reproduce the decrypted data.